AMENDMENTS TO THE CLAIMS

Please cancel Claims 114, 116, and 121-150, without prejudice, as being directed to non-elected subject matter. Please amend Claims 109-113, 115, 117-120, and 151-152 as follows.

109.(Currently Amended) A nucleic acid probe or primer comprising:

(A) a nucleotide sequence of (SEQ. ID. NO.:1), a nucleotide sequence complementary thereto, a degenerate coding sequence thereof, or a gene-specific fragment of any of these; or

(B) a nucleic acid segment encoding a human PAPSS2 protein having an amino acid sequence of (SEQ. ID. NO.:7).

110. (Currently Amended) The nucleic acid probe or primer of Claim 109, wherein the gene specific fragment has a nucleotide sequence comprising 5'-TGGACCAAGGATGACGATGT-3' (SEQ. ID. NO.: 3), a complementary nucleotide sequence, or a PAPSS2-specific sequence overlapping either of these at 5 or more contiguous nucleotides at its 5' or 3' end.

111. (Currently Amended) The nucleic acid probe or primer of Claim 109, wherein the gene specific fragment has a nucleotide sequence comprising 5'-CGGAAAGATGGCAACAATGG (SEQ. ID. NO.: 4), a complementary nucleotide sequence, or a PAPSS2-specific sequence overlapping either of these at 5 or more contiguous nucleotides at its 5' or 3' end.

112.(Currently Amended) The nucleic acid probe or primer ~~construct~~ of Claim 109, wherein the the gene specific fragment has a nucleotide sequence comprising 5'-CTGGTGCTGGAAAAACAACG-3' (SEQ. ID. NO.: 5), a complementary nucleotide sequence, or a PAPSS2-specific sequence overlapping either of these at 5 or more contiguous nucleotides at its 5' or 3' end.

113.(Currently Amended) The nucleic acid probe or primer ~~construct~~ of Claim 109, wherein the the gene specific fragment has a nucleotide sequence comprising 5'-

TGCGAATGGAGAAATAAAGCTG (SEQ. ID. NO.: 6), a complementary nucleotide sequence, or a PAPSS2-specific sequence overlapping either of these at 5 or more contiguous nucleotides at its 5' or 3' end.

114. (Canceled).

115. (Currently Amended) An oligonucleotide primer for amplifying a PAPSS2-specific nucleic acid segment, comprising:

(A) (SEQ. ID. NO.:3), (SEQ. ID. NO.:4), (SEQ. ID. NO.:5), (SEQ. ID. NO.:6), (SEQ. ID. NO.:11), (SEQ. ID. NO.:12), (SEQ. ID. NO.:13), (SEQ. ID. NO.:14), (SEQ. ID. NO.:15), (SEQ. ID. NO.:16), (SEQ. ID. NO.:17), (SEQ. ID. NO.:18), or (SEQ. ID. NO.:28);

(B) a nucleotide sequence complementary to (A);

(C) a PAPSS2-specific fragment of (A) or (B) at least 15 nucleotides long; or

(D) a PAPSS2-specific nucleotide sequence overlapping at 5 or more contiguous nucleotide positions any sequence of (A) or (B) at its 5' or 3' end.

116.(Canceled).

117.(Currently Amended) A pair of oligonucleotide primers comprising a forward and a reverse primer, said pair capable of producing detectable nucleic acid amplification products having:

(A) (SEQ. ID. NO.:1) or (SEQ. ID. NO.:9);

(B) a nucleotide sequence complementary to (A); or

(C) a PAPSS2 gene-specific fragment of (A) or (B).

118.(Currently Amended) The pair of oligonucleotide primers of Claim 117, wherein the forward primer has a nucleotide sequence comprising 5'-TGGACCAAGGATGACGATGT-3' (SEQ. ID. NO.: 3), a complementary nucleotide sequence, or a PAPSS2-specific fragment of either of these at least 15 nucleotides long; and

the reverse primer has a nucleotide sequence comprising 5'-CGGAAAGATGGCAACAATGG-3' (SEQ. ID. NO.: 4), a complementary nucleotide sequence, or a PAPSS2-specific fragment of either of these at least 15 nucleotides long.

119. (Currently Amended) The pair of oligonucleotide primers of Claim 117, wherein

the forward primer has a nucleotide sequence comprising 5'-CTGGTGCTGGAAAAACAACG-3' (SEQ. ID. NO.: 5), a complementary sequence, or a PAPSS2-specific fragment of either at least 15 nucleotides long; and

the reverse primer has a nucleotide sequence comprising 5'-TGCGAATGGAGAAATA AAGCTG-3' (SEQ. ID. NO.: 6), a complementary sequence, or a PAPSS2-specific fragment of either at least 15 nucleotides long.

120.(Currently Amended) The pair of oligonucleotide primers of Claim 117, wherein

the forward primer comprises:

(A) (SEQ. ID. NO.:3), (SEQ. ID. NO.:5), (SEQ. ID. NO.:11), (SEQ. ID. NO.:12), or (SEQ. ID. NO.:13);

(B) a nucleotide sequence complementary to any of (A);

(C) a gene-specific fragment of (A) or (B) at least 15 nucleotides long; or

(D) a PAPSS2-specific nucleotide sequence overlapping at 5 or more contiguous nucleotide positions any sequence of (A) or (B) at its 5' or 3' end; and

a reverse primer comprising:

(E) (SEQ. ID. NO.:4),(SEQ. ID. NO.:6), (SEQ. ID. NO.:14), (SEQ. ID. NO.:15), (SEQ. ID. NO.:16), (SEQ. ID. NO.:17), or (SEQ. ID. NO.:18);

(F) a nucleotide sequence complementary to any of (E);

(G) a PAPSS2-specific fragment of (E) or (F) at least 15 nucleotides long; or

(H) a PAPSS2-specific nucleotide sequence overlapping at 5 or more contiguous nucleotide positions any sequence of (E) or (F) at its 5' or 3' end.

Claims 121-150 (Canceled).

151. (Currently Amended) A genetic testing kit for diagnosing SEMD in a human subject or for identifying a human carrier of SEMD, said kit comprising an oligonucleotide primer(s) comprising:

(A) a nucleotide sequence of (SEQ- ID- NO-:3), (SEQ- ID- NO-: 4), (SEQ- ID- NO-:5), (SEQ- ID- NO-:6), (SEQ- ID- NO-: 11), (SEQ- ID- NO-: 12), (SEQ- ID- NO-:13), (SEQ- ID- NO-:14), (SEQ- ID- NO-:15), (SEQ- ID- NO-:16), (SEQ- ID- NO-:17), (SEQ- ID- NO-:18), or (SEQ- ID- NO-:28);

(B) a nucleotide sequence complementary to (A);

(C) a PAPSS2-specific fragment of (A) or (B) at least 15 nucleotides long; or

(D) a PAPSS2-specific nucleotide sequence at least 15 nucleotides long and overlapping at 5 or more contiguous nucleotide positions any sequence of (A) or (B) at its 5' or 3' end; and

instructions for using the primer(s) in diagnosing SEMD in a human subject or for identifying a human carrier of SEMD.

152.(Currently Amended) A genetic testing kit for diagnosing spondyloepimetaphyseal dysplasia in a human subject or for identifying a human carrier of spondyloepimetaphyseal dysplasia, comprising the pairs of oligonucleotide primers of Claim 11730; and

instructions for using the primer(s) in diagnosing SEMD in a human subject or for identifying a human carrier of SEMD.

153. (Original) A genetic testing kit for diagnosing spondyloepimetaphyseal dysplasia in a human subject, or for identifying a human carrier of spondyloepimetaphyseal dysplasia, comprising the pair of oligonucleotide primers of Claim 120; and

instructions for using the primer(s) in diagnosing SEMD in a human subject or for identifying a human carrier of SEMD.